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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,625	11/12/2003	Stephen H. Broy	030541	7984

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EXAMINER	
MERKLING, MATTHEW J	
ART UNIT	PAPER NUMBER
1709	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,625	BROY ET AL.	
	Examiner	Art Unit	
	Matthew J. Merkling	1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/13/2005, 2/5/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, 7, 8-13, 17-23, 25, 27, 28, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Chowienczyk (GB 2 284 059 A).

With regard to claim 1, Chowienczyk discloses a gas sensor (Fig. 1 (4)), comprising:

a housing (Fig 4 (26)) including a cavity (illustrated in Fig. 4), the housing including an anode (a component of a gas sensing fuel cell (pg. 6 (4))) within the cavity (illustrated in Fig. 4);

a controller (microprocessor, Fig. 1 (12)) in communication (24) with the anode (4) and configured to measure sensor current output (pg. 8). One of ordinary skill in the art would recognize that the output from a fuel cell sensing means is a current as is evidenced by Ulkem (2003/0155240 A1, paragraph [0004]).

With regard to claim 2, Chowienczyk discloses the gas sensor of claim 1, wherein the controller is further configured to determine the remaining life of the sensor (pg 8).

With regard to claim 3, Chowienczyk discloses a controller (Fig.1 (12)) configured to determine the remaining life of the sensor (pg. 8).

With regard to claim 5, Chowienczyk discloses the sensor, wherein the controller (Fig. 1 (12)) is further configured to communicate sensor data output such as a date of manufacture as well as other data pertaining to said sensor (pg. 7).

With regard to claim 7, Chowienczyk discloses the gas sensor, further comprising an analog to digital converter (Fig. 1 (22)) in communication with the controller (Fig. 1 (12)).

With regard to claims 8 and 9, Chowienczyk discloses the gas sensor of claim 7, further comprising a display (Fig. 1 (16)) in communication with the analog to digital converter (22) and configured to display the remaining life of the sensor (pg. 8). Chowienczyk further discloses said display can be a liquid crystal display (pg. 8).

With regard to claim 10, Chowienczyk discloses the controller (Fig. 1 (12)) coupled to a host (control unit, Fig. 1 (10), pg. 8).

With regard to claim 11, Chowienczyk discloses the host system configured to display the remaining life of the sensor (pg. 8).

With regard to claim 12, Chowienczyk discloses a gas sensor (Fig. 1 (4)), comprising:

a housing (Fig. 4 (26)) including a cavity (illustrated in Fig. 4), the housing including an anode (a component of a gas sensing fuel cell (pg. 6 (4))) within the cavity (illustrated in Fig. 4);

a controller (Fig. 1 (12)) in communication (24) with the anode (4) and configured to determine the remaining life of the sensor (pg. 8);

an analog to digital converter (Fig. 1 (22)) in communication with the controller (12); and a display (16) in communication with the analog to digital converter and configured to display the remaining life of the sensor (pg. 8).

With regard to claim 13, Chowienczyk discloses a controller (Fig.1 (12)) configured to determine the remaining life of the sensor (pg. 8).

With regard to claim 17, Chowienczyk discloses the sensor of claim 12, and further discloses the display to be a liquid crystal display (pg. 8).

With regard to claim 18, Chowienczyk discloses a controller (Fig. 1 (12)) coupled to a host system (control unit, Fig 1. (10), pg. 8).

With regard to claim 19, Chowienczyk discloses the host system (10) configured to display the remaining life of the sensor (pg. 8).

With regard to claim 20, Chowienczyk discloses gas sensor, comprising:

a housing (Fig 4 (26)) including a cavity (illustrated in Fig. 4), the housing including an anode (a component of a gas sensing fuel cell (pg. 6 (4))) within the cavity (illustrated in Fig. 4);

means for measuring sensor output at the anode (Fig. 4 (4)) and determining the remaining life of the sensor (pg. 6-8).

With regard to claim 21, Chowienczyk discloses a system for determining the remaining life of a gas sensor, comprising:

a housing (Fig 4 (26)) including a cavity (illustrated in Fig. 4), the housing including an anode (a component of a gas sensing fuel cell (pg. 6 (4))) within the cavity (illustrated in Fig. 4);

a controller in communication with the anode (as illustrated in Fig. 1) and configured to measure sensor current output (pg. 8); and

a host system (control unit, Fig. 1 (10)) in communication with the controller (12) and configured to receive data output from the controller (pg. 8).

With regard to claim 22, Chowienczyk discloses the system of claim 21 (as described above), wherein the controller (12) is further configured to determine the remaining life of the sensor, at least one of the sensor and the host system is configured to display (16) the remaining life of the sensor (pg. 8).

With regard to claim 23, Chowienczyk discloses the gas sensor of claim 21 (as described above), wherein the controller is configured to determine the remaining life of the sensor (pg. 8).

With regard to claim 25, Chowienczyk discloses the sensor of claim 21 (as described above), wherein the controller (12) is further configured to communicate sensor data output such as the date of manufacture (pg. 7).

With regard to claim 27, Chowienczyk discloses the gas sensor of claim 21 (as described above), wherein the display (16) is a liquid crystal display (pg. 8).

With regard to claim 28, Chowienczyk discloses a method of determining the remaining life of a gas sensor, comprising:

measuring sensor current (or voltage) output by a controller (pg. 6);

determining the remaining life of the sensor (pg. 8).

With regard to claim 30, Chowienczyk discloses the method of claim 28 (as described above, further comprising communicating the date of manufacture (pg. 7) of the gas sensor.

With regard to claim 31, Chowienczyk discloses the method of claim 30 (as described above), further comprising displaying data from the sensor such as the date of manufacture (pg. 7, 8).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4, 14, 15, 24, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowienczyk in view of Say et al. (US 6,565,509).

With regard to claims 4, 14, 24, Chowienczyk fails to teach the data from the controller as being in an encrypted format.

Say also teaches an analytical sensor that includes a sensor (Fig. 1 (42)), a controller (control unit, (44)) and a means for displaying (46) acquired data from said control unit.

Say teaches data from said sensor and control unit as being encrypted in order to eliminate "crosstalk" and to identify signals from the appropriate control unit (col. 49 lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the encryption of data from said sensor, as in Say, with the sensor of Chowienczyk in order to eliminate "crosstalk" and properly identify signals from the appropriate control unit.

With regard to claim 15, the Chowienczyk further discloses the sensor of claim 14, wherein the controller (Fig. 1 (12)) is further configured to communicate sensor data output such as a date of manufacture as well as other data pertaining to said sensor (pg. 7).

With regard to claim 29, Chowienczyk fails to teach the data from the controller as being in an encrypted format.

Say teaches a method of communicating data from said sensor and control unit as being encrypted in order to eliminate "crosstalk" and to identify signals from the appropriate control unit (col. 49 lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of encrypting data from said sensor, as in Say, with the method of determining the remaining life of a gas sensor of Chowienczyk in order to eliminate "crosstalk" and properly identify signals from the appropriate control unit.

5. Claims 6, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowienczyk as applied above and in further view of Nordman et al. (US 6,287,519).

Regarding claims 6, 16, and 26, Chowienczyk fails to teach the microcontroller as being positioned inside the housing of the sensor.

Nordman also teaches a portable handheld gas (Fig. 1 (10)) sensor apparatus comprising a housing (12) including a cavity and a microcontroller (controller printed circuit, Fig. 4 (46)).

Nordman teaches a gas sensor (10) wherein the microcontroller (controller printed circuit, (46)) is contained within a housing (12) in order to make the gas sensor portable for use in repair garages for testing a vehicle exhaust emissions for compliance with minimum standards (col. 1 lines 14-23, col. 2 lines 1-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the microcontroller within the housing (as in Nordman) with the gas sensor of Chowienczyk in order to make said sensor handheld and portable for ease of use in applications such as testing vehicle exhaust emissions at a repair garage.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is 571-272-9813. The examiner can normally be reached on Monday - Friday 8:30-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa D. Neckel can be reached on 571-272-9827. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJM

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER